a consideration of that report. It must, however, be admitted that both the report and the resolutions are in many ways disappointing. The former has already been referred to in the pages of NATURE (April 23, 1914, p. 201). The recommendations put forward are that, as an initial measure, a minimum international size-limit of 20 centimetres (8 in.), below which it would be illegal to land plaice, should be imposed, and that during the spring and summer months (April 1 to September 30 in each year) this limit should be increased to 22 centimetres. A perusal of the reports suggests that the council itself scarcely contends that such a small size-limit can produce any very marked result, since, as a matter of fact, a very small percentage of fish under these sizes is at present landed. The idea seems to be that by commencing with a small size-limit it will be possible to raise it gradually without producing any serious disturbance of the fishing industry. The recommendations are, however, really an admission that a size-limit which would be effective in preventing the great destruction of small plaice by steam trawlers on the eastern grounds of the North Sea is not practicable from the point of view of the fishing industry as a whole, which is very much the conclusion arrived at by the various Parliamentary committees which have inquired into the matter in this country in past years. So far as one can see, the only practical effect of the present proposals will be to harass the very poorest class of fishermen, generally old men who get a precarious living by working in a small way in estuaries and inshore waters, and do an infinitesimal amount of damage compared with what is done by the large trawlers. Whether the proposals will, or ought to meet with greater favour at the hands of our Parliamentary legislators than their predecessors have done, is open to very considerable doubt.

Apart from the question of plaice, the most important reports in the volumes we are considering are those by Dr. Johs. Schmidt on eel investigations for 1913, by Dr. Ehrenbaum on the mackerel, and by the late Dr. P. P. C. Hoek, whose recent death will be a cause of deep regret to all fishery investigators, on the pilchard or sardine. With regard to Dr. Ehrenbaum's report on the mackerel, it must be admitted that the the new facts and observations brought forward are not extensive, and the fact that the author is dealing throughout with the reports and writings of other observers rather than with a fishery of which he has himself any great personal knowledge somewhat detracts from its value. The same criticism applies to a large extent also to Dr. Hoek's report. Any weakness of the reports due to this cause would seem to be due to the policy of the International Council in spending considerable sums of money each year in having such reports produced, money which one would imagine could be better employed in carrying out original investigations in the areas where the fisheries take place.

In conclusion, we may direct attention to the summary of the work done by the International Council during the ten years 1902–12, edited by Commander Drechsel, the general secretary, which constitutes pp. 1–83 of vol. xvi. This should be of use to those who are interested in the work which the international cooperation has accomplished.

NOTES.

WE regret to learn of the death, on Sunday last, July 12, of the Rev. Osmond Fisher, the well-known geologist, in his ninety-seventh year.

THE honorary freedom of Newcastle-on-Tyne was conferred on the Hon. Sir C. A. Parsons on July 10 in recognition of his achievements in science, particularly as the inventor of the steam turbine. It had been decided to confer a similar honour on Sir Joseph W. Swan, but he has since died. The symbols of the freedom—a scroll and casket—have, however, been presented to a representative of his family.

A RUMOUR, based on a misunderstanding of a telegram from Captain Bartlett, who is at Nome, Alaska, reached London last week, announcing a disaster to the Stefansson Arctic Expedition, which left Canada last year with the object of exploring the vast uncharted regions between the north of Canada and Siberia and the north pole. A party, including three members of the scientific staff, was said to be missing. Later information received from Captain Bartlett shows that he is not aware that any disaster has occurred.

THE excavation of the Dewlish elephant-trench is still unfinished, but when the excursion of the Dorset Field Club took place on June 30 it was clear that the "trench" was not artificial. Instead of ending below in a definite floor it divides downwards into a chain of deep narrow pipes in the chalk. A few bones of *Elephas meridionalis* had been found, but no clear trace of man. We shall wait with interest the completion of this work, which is proving more arduous than had been expected.

IN order to provide opportunities for the more complete investigation of the nature and causes of human disease and methods of its prevention and treatment, Mr. John D. Rockefeller has just given 510,000*l.* to the Rockefeller Institute for Medical Research. This gift is in addition to a special fund of 200,000*l.* which Mr. Rockefeller has provided in order that the institute may establish a department of animal pathology. Mr. Rockefeller's previous gifts to the institute amounted to about 1,800,000*l.*, exclusive of real estate in New York City, so that the endowment of the institute amounts now to more than 2,500,000*l.*

ON Thursday last, Sir Clements Markham unveiled at Cheltenham a statue of Dr. Edward Adrian Wilson, who was born in that town, and perished with Captain Scott on the great ice barrier in March, 1912. The statue, which stands in a prominent position on the Promenade, was designed by Lady Scott, and executed under the superintendence of Messrs. Boulton, a local firm of sculptors. It represents Dr. Wilson in polar dress, hands on hips, in a natural, careless attitude, and is an excellent likeness. A brass plate let into the stone base bears an inscription recording the heroism of the members of the expedition who perished with him.

MR. J. FOSTER STACKHOUSE has sent us a copy of a circular letter relating to the British Antarctic and Oceanographical Expedition being organised by him. The circular states that the expedition will leave England towards the end of the year for the following purposes:—(1) To investigate reports of mariners as to the existence of dangerous uncharted rocks, shoals, reefs, islands, etc., on the trade routes of the world; (2) to discover the extent and position of the coast line still left unmapped on the continent of Antarctica; (3) to make a scientific survey of the sea in general. This programme, we need scarcely point out, is ambitious enough for half a dozen expeditions, and we should be glad to know the names of men of science associated with it, either as members of Mr. Stackhouse's advisory committee or of the proposed undertaking.

DR. W. S. BRUCE left Edinburgh on Thursday, July 9, on an expedition to Spitsbergen. The object of the expedition is hydrographic and geological research in Wybe Jansz Water, or Stor Fiord, where the coast is little known, and where there are practically no soundings. Geological investigations will form an important item in the programme. Dr. Bruce is to be assisted by Mr. J. V. Burn Murdoch, who has previously twice accompanied him to Spitsbergen, by Mr. R. M. Craig, of the geological department of the University of St. Andrews, and by Mr. J. H. Koeppern, zoologist. He will be himself responsible for the conduct of the hydrographic work. The expedition is expected to be absent for about two months. It is supplied with instruments by the Admiralty and the Scottish Oceanographical Laboratory, and is also supported by the Royal Geographical Society and the Prince of Monaco.

AT the twelfth annual general meeting of the British Academy, held on July 10, Lord Bryce, who was in the chair, urged that the academy should have the means of encouraging and aiding inquiries of real value which cannot be materially profitable to those who undertake them, and of paying for the publication of works needed by students but which cannot be expected to command a remunerative sale. Ample justification, he said, for such grants would be found both in the practice of the chief nations of Continental Europe and in that followed as respects scientific inquiries, grants for which are made to the Royal Society to be administered by that body. Lord Haldane, Lord Fitzmaurice, and Mr. John W. Mackail were elected new fellows by ballot, and the following were elected corresponding fellows:—M. Charles Bémont, Mr. C. W. Eliot, M. Omont, and Signor Pasquale Villari. Lord Bryce was re-elected president, and Canon Charles, Prof. Percy Gardner, Sir Courtenay Ilbert, Prof. W. P. Ker, and Prof. W. R. Sorley were appointed members of the council.

THE annual meeting of the British Medical Association will be held this month at Aberdeen. The president's address will be delivered on July 28 by Sir Alexander Ogston, K.C.V.O. The address in medicine will be given by Dr. A. E. Garrod, and that in surgery by Sir John Bland-Sutton. Prof. J. Arthur Thomson will deliver the popular lecture. The scientific business of the meeting will be conducted in sixteen sections, which, with the names of the presidents, are as follows:—Anatomy and Physiology, Prof. R. W. Reid; Dermatology and Syphilology, Dr. A. Eddowes; Diseases of Children, including Orthopædics, Dr. J. Thomson; Electro-Therapeutics and Radiology, Dr. S. Sloan; Gynæcology and Obstetrics, Dr. F. W. Nicol Haultain; Laryngology, Rhinology, and Otology, Dr. H. Lambert Lack; Medical Sociology, Dr. J. Gordon; Medicine, Dr. F. J. Smith; Naval and Military Medicine and Surgery, Surgeon-General W. M. Craig; Neurology and Psychological Medicine, Dr. F. W. Mott; Ophthalmology, Mr. C. H. Usher; Pathology and Bacteriology, Dr. W. S. Lazarus-Barlow; Pharmacology, Therapeutics, and Dietetics, Prof. J. T. Cash; State Medicine and Medical Jurisprudence, Prof. Matthew Hay; Surgery, Mr. J. Scott Riddell, Tropical Medicine, Prof. W. J. R. Simpson.

THE *Eugenics Review* for July (vol. vi., No. 2) contains many articles of general interest. Mr. Nettleship reviews the results of consanguineous marriages, and concludes that those between cousins are as safe from the eugenic point of view as any other marriages, provided the parents and stock are sound. Mr. Macleod Yearsley deals with the problem of deafness and its prevention. The chief causes of acquired deafness are meningitis, fevers and other infective diseases, such as tuberculosis and syphilis, and adenoids and similar throat conditions. The prevention of acquired deafness therefore largely rests with efficient treatment in the fever hospitals and with medical inspection and treatment of school children.

IN the third part of that excellent periodical, *Ancient Egypt*, the editor, Prof. Flinders Petrie, gives an authoritative account of the discovery of the famous treasure of Lahun, in a tomb which had been already plundered, probably in the decadence of the kingdom before the Hyksos. The splendid diadem and two pectorals, one bearing the cartouche of Senusert II., the other that of Amenamhat III., are specially noteworthy. The same scholarly explorer contributes the first part of an article which, by reference to the work of recent travellers, provides material for the comparison of Egyptian funerary rites with those of the modern Bantu and other African races—a piece of work which throws important light on many anthropological problems.

IN the review of "Maya Art" in NATURE of July 2 (p. 456), in referring to Maya chronology, the statement was made that the number 13 "is based upon the fact that eight years of 365 days are exactly five years of the planet Venus." Mr. A. E. Larkman writes from Southampton to suggest that there is a discrepancy in this statement. The reviewer regrets having omitted to say that the five years of the planet

Venus refer to its synodic (not sidereal) revolutions of 583·9 days each, the only "Venus year" which the Mayas could appreciate, unless they had knowledge of the heliocentric system ($8 \times 365 = 5 \times 584 = 2920$). The justification of the number 13 as given on p. 456 is therefore good enough for a people who were great worshippers of the morning and evening star, of the representations, symbols, and attributes of which their almanacs are full. This and further detail is discussed fully in Foerstemann and Seler's collected and translated papers, published by the Smithsonian Institution, Washington, 1904.

A JOINT meeting of the British Psychological Society, the Aristotelian Society, and the Mind Association was held at Durham on July 3–6. A discussion of considerable interest to psychology took place on the rôle of repression in forgetting. In it was considered Freud's view that in forgetting, even among normal people, an important part is played by the factor which he terms "repression." There appeared to be distinct agreement among the speakers that forgetting, both of the ordinary and the pathological kind, while sometimes attributable to defects of retention, is frequently incapable of explanation without the assumption of positive factors which prevent recall of the retained matter. The nature of these positive forces, as they are treated by Freud, was discussed at length. Mr. Pear held that two kinds of forgetting should be distinguished, one due to failure to retain (the conditions for which may be purely physiological in character), the other to failure to recall. The latter condition may be due to psychological factors, some of which are possibly of the kind described by Freud. Dr. Wolf's paper criticised the use of the term "repression." Dr. Mitchell expounded in detail Freud's theory of hysterical amnesia, while Prof. Loveday criticised Freud's general conceptions, especially that of unconscious thought, pointing out the defects which were entailed by an adherence to the old doctrine of associationism. Dr. Ernest Jones and Dr. Crichton Miller supported Freud's theory by facts from clinical experience. Among other speakers were Mr. W. McDougall, Prof. T. P. Nunn, Prof. G. F. Stout, and Dr. H. Wildon Carr.

WE have received from Mr. H. Swithinbank and Mr. G. E. Bullen a copy of a paper entitled "The Scientific and Economic Aspects of the Cornish Pilchard Fishery: ii., The Plankton of the Inshore Waters in 1913 considered in Relation to the Fishery." Samples of plantkon were taken at twelve stations in Mevagissey and St. Austell Bay, at eleven stations in Mount's Bay, and at six stations in St. Ives Bay, on June 1–3, 1913, and similar collections were made at a number of these stations in August of the same year. The principal species found in the samples have been identified and recorded. The paper also contains some notes on the pilchard fishery during the season.

THE reports of the Albany Museum, Grahamstown, for the years 1910–13 are issued in a single cover. In that for 1910, the director reviews the condition of the building and collections at the time he assumed control, in the course of which he compliments the late director and his staff on their efforts to improve the museum, although hampered by insufficient funds. On a later page the preparation and publication of a series of works on the entire South African fauna is urged, those at present in existence being more or less obsolete. In the report for 1913 large additions to the collections are recorded, which render the need of extension of the building more pressing than ever.

TO prevent the deaths of migrating birds from exhaustion while fluttering around the lanterns of lighthouses, the Royal Society for the Protection of Birds a short time ago placed perches near the lanterns at St. Catherine's and the Caskets. The perches are made in the form of a small ladder of wood and iron within view of the light, but so placed as not to obstruct it. Observations have shown that these perches were crowded every night during the migrating season. Trinity House has now permitted the society to furnish other lighthouses with similar accommodation, and the next so to be treated are the South Bishop, off Pembrokeshire, and that at Spurn Head, where the work will be completed this summer.

A NOTICE of the English supplement, based on the second edition of "Jost's Lectures on Plant Physiology," appeared recently in these pages on May 7, and we now direct attention to the publication, by Mr. Gustav Fischer, of the third German edition of this work. The forty-two lectures which comprise the volume occupy 744 pages of text, and the various branches of the subject have been thoroughly revised up to the date of publication. Attention may be more particularly directed to the full treatment of hybridisation and plant-breeding in lectures 29 and 30 of this new edition. The work is on the whole so comprehensive and representative that it is a matter of regret that the subject of protoplasmic connections is somewhat inadequately treated, but it must be admitted that blemishes such as this are rare. Jost's lectures hold the position of pre-eminence as a standard presentation of the science of plant physiology, and the book is all the more valuable since the facts are presented in a particularly interesting manner.

WE have received the first part of the *Annals of Applied Biology*, the newly-founded official organ of the Association of Economic Biologists. Prof. Maxwell Lefroy, assisted by a strong committee, acts as editor, and the magazine is published by the Cambridge University Press. The number contains a varied selection of articles; perhaps the most important is Mr. A. E. Cameron's detailed account of the life-history of *Pegomyia hyoscyami*, known most widely by one of its several synonyms—*P. betae*—the mangel-fly. The leaf-mining maggot is here described in its successive stages. Mr. F. V. Theobald writes on the green spruce aphis (*A. abietina*), an insect very destructive in England and Ireland, but apparently rare on the Continent, and not certainly known in Scotland. All naturalists, whether specially interested in "economic" questions or not, should read Prof. F. W. Gamble's suggestive article on impending developments in agricultural zoology.

AT the conclusion of an article on the African element in the fresh-water fauna of India, published in the report of section 4 of the *Compte rendu* of the ninth International Zoological Congress, held at Monaco in 1913, Dr. Annandale remarks that the existence of this African element is more pronounced among lower invertebrates than in other groups. Admitting the existence in late Cretaceous and perhaps early Tertiary time of a land-bridge between the Malabar coast of India and East Africa, and of a second connecting Africa with South America, he argues that at this period India, Africa, and South America doubtless possessed a very similar fresh-water fauna, of which Africa formed the central area. Any land-passages from India to South America must almost certainly have included Africa; and the occurrence of similar generic types only in the two former areas must be explained by their dying-out in the third. Madagascar, if ever united with the tri-continental tract, must have been separated at an earlier date than the other constituents.

FOR some years past Mr. Roy Andrews has been engaged in investigating the whale and whale-fisheries of the North Pacific; and it has been decided to publish the results of these investigations in a series of monographs in the Memoirs of the American Museum of Natural History. In the first of these (ser. 2, vol. i., part 5) the author deals with the grey whale (*Rhachianectes glaucus*), of the Californian and Japanese seas, which is the sole representative of its genus, and is now shown to be the most archaic type of whalebone-whale in existence. Its most strikingly primitive features include the presence of scattered hairs over the whole head, the small number, shortness, thickness, and wide separation of the plates of whalebone, the persistence of a wide strip of the frontal bones on the vertex of the skull, and the length of the nasals, the retention of stout neural arches by the first two cervical vertebræ, which, like the other five, are completely free, the length and straightness of the humerus, and the large size of the remnants of the pelvis. In several of these respects the genus, which Mr. Andrews considers should represent a family by itself, approximates to Plesiocetus of the European Pliocene.

To the April number of the *American Museum Journal* Prof. H. F. Osborn communicates a note on the collection of Permian South African reptiles just acquired by the museum from Dr. R. Broom. The author remarks that these reptiles represent the climax of development of the amphibian stock, and the first attempts at progression on land. Reptiles of this early type are common to South Africa, Texas and New Mexico, and part of Russia, those from the first and last localities being much more nearly related than are those from America to either. "The Texan reptiles continued to crawl close to the ground, but in South Africa we find that in many of the groups, through a powerful development of the limbs, the body is raised well off the ground—a distinct advantage which gave the start that resulted in the development of mammals." In the course of a letter in the same issue on the work of field-collectors, Col. Theodore Roosevelt remarks that he particularly wishes "to avoid seeing growing up in the United States the type of scientist who merely supplies the nomenclature and technical descriptions for specimens furnished him by field-observers." No mention is made of the sportsmen, who, on the strength of the merest smattering of zoological knowledge, nowadays feel themselves qualified to discuss the affinities and nomenclature of game animals.

THE importance to science of accurately expressed terms and definitions could scarcely be enforced more clearly than in the case of seismology. Mallet, for instance, bequeathed to us the term *seismic focus*. Later writers have used the word *hypocentre* as an equivalent term, and *epicentre* for the projection of the hypocentre on the surface. All three terms imply that the region within which an earthquake originates is a point, or practically a point. Yet Mallet himself did not hold this view, for he regarded the focus of the Neapolitan earthquake of 1857 as a vertical fracture several miles long in both directions. The subject has lately been discussed by Dr. G. Martinelli in an interesting paper (*Mem. della Pont. Accad. Rom. dei Nuovi Lincei*, vol. xxxi., 1913). Dr. Martinelli also considers some recent inquiries as to the form of the hypocentre, and concludes that the "Herdlinien" of Harboe and the "seismotectonic lines" of Hobbs have little, if any, physical meaning. He is in favour, however, of retaining the term hypocentre as denoting the limited region within which the initial disturbance takes place.

THE Director-General of Observatories (India) has issued a memorandum (dated Simla, June 8) on the meteorological conditions prevailing before the advance of the south-west monsoon. Records of the past show that the monsoon rainfall of India is affected by previous conditions over various parts of the earth, *e.g.* high barometric pressure during March–May in Argentina and Chile, and low pressure in May in the Indian Ocean are favourable conditions, while high pressure in India in May is advantageous for Malabar, and possibly Mysore, but unfavourable for other parts. Among the inferences drawn from available data are: (1) that, on the whole, the total monsoon rainfall this year will probably be somewhat less abundant than usual, at any rate in the earlier part of the season; (2) as regards geographical distribution, during the first half of the monsoon period, while local conditions are favourable for the Malabar coast, they are somewhat unfavourable for several other parts.

WE have received from Prof. A. McAdie, director of the Blue Hill Observatory (Massachusetts), an appreciative review of the scientific work of the late Prof. A. L. Rotch, published (apparently) in the Annals of Harvard College. Many of the facts referred to are already known to our readers; Prof. Rotch was the founder, and for more than twenty-seven years director, of the observatory. The upper-air records obtained by him have been of great service in the study of various meteorological problems, and a list of 183 of his principal articles and memoirs are given in Prof. McAdie's notice.

A CONVENIENT method of determining the melting or solidifying range of temperature of a lava or similar substance, which on account of its want of homogeneity must be tested in bulk, is described by Messrs. K. Fuji and T. Mizoguchi in the March number of the Proceedings of the Tokyo Physical Society. The material to be tested is placed in the form of powder in an earthenware crucible of about 50 c.c., and is heated in an electric resistance furnace. The temperature is measured by a standardised platinum platinum-rhodium couple, and the electrical conductivity by the current sent by an alternating electromotive force applied to two spherical platinum electrodes immersed in the molten material. The apparatus is standardised by the use of fused sodium chloride. According to the measurements made by the authors, the conductivity of molten lava may exceed 0·5 reciprocal ohms per centimetre cube, and may therefore influence the propagation of electric waves over that part of the earth's surface beneath which it is present.

IN the July number of *Science Progress* the editorial article entitled "Irrationalism" is a strong condemnation of the position taken up by the anti-vivisectionist. "Irrationalism," it is truly urged, "is generally the enemy of humanity. In the form of crankism it clings shrieking to the hands of science just when she is engaged upon her most difficult but beneficent labours, and, in the form of political party, it paralyses the efforts of the wisest legislators." The age of the earth is discussed by Prof. J. Joly, whilst Mr. H. S. Shelton, dealing with the same subject, brings forward arguments, with which probably most chemists will agree, to show that sea-salt data are unsatisfactory as a basis of calculation of geologic time. Mr. Arthur Holmes considers the terrestrial distribution of radium, which bears upon the same problem. Articles of general interest are contributed by Dr. J. J. Jenkins on scientific research and the sea-fisheries, by Mr. W. R. G. Atkins on some recent work on plant oxidases, and by Mr. R. Steele on photographic and mechanical processes used in the reproduction of illustrations.

THE fourth article on the Ford motor-car works in the *Engineering Magazine* for July describes the methods adopted for assembling motors and their components. It is common practice in these works to place the most suitable component on elevated ways or rails, and to carry it past successive stationary sources of component supply, and past successive groups of workmen who fix the various components to the principal component, until the assembly is completed and ready to leave the assembling line. A slow-moving chain is used in certain cases to drive the assembly in progress along the rails. The following figures will illustrate the saving in time effected: Motor assembling on separate benches gave, in October, 1913, 1100 men working 9 hours to assemble 1000 motors. On full-length motor-assembling lines, in May, 1914, 472 men working 8 hours assembled 1000 motors. It will be understood that elaborate systems of making all parts to gauge and of rigid inspection of the finished components contribute largely to these results.

AMONG the papers read at the Paris meeting of the Institution of Mechanical Engineers last week is one on signalling on railway trains in motion, contributed by the engineers of six of the French railways. On the Nord, a fixed ramp is set in the centre of the track parallel to the rails, and at a distance from the signal varying from the foot of the signal to 200 metres. The oak beam forming the ramp carries a cover-plate of brass; a stout square piece of copper is riveted to the plate and is connected to the wire from the battery. Cushions of tarred felt are placed between the ramp and the sleepers so as to reduce vibrations due to trains passing. The locomotives carry an electro-automatic whistle, the steam or compressed-air valve of which is operated by a strong spring and a Hughes electromagnet. A brush on the locomotive formed of a series of small brooms of hard elastic copper wire connects the electromagnet through the ramp to the battery; the other wire goes to earth through the wheels and rails. The signal vane is provided with a switch which controls the position of the signal vane as well as releases the whistle. All the installations described in the paper must be regarded as being in the experimental stage.

WE have received a copy of "The Leather Trades Year Book," the official publication of the United Tanners' Federations of Great Britain and Ireland. The year-book is published at 3*s*., and can be obtained from the hon. editors, 176 Tower Bridge Road, London, S.E. It contains a large number of statistical data for the last five years of hides, tanning materials, and leather-made goods, and a series of illustrated articles dealing with the science and practice of the leather industry.

AMONG recent additions to the "Cambridge Manuals of Science and Literature," published by the Cambridge University Press at 1*s*. net each, the following deserve mention. One by Dr. R. A. Sampson, Astronomer Royal for Scotland, has the title, "The Sun," and provides in its 141 pages a brief statement of the present position of fact and theory relating to the sun. The second is by Mr. T. C. Cantrill, and deals with coal mining. He outlines the evolution of the industry from its primitive beginnings, and indicates some of the far-reaching effects it has had on domestic and mechanical affairs. The third book, "The Making of Leather," is by Mr. H. R. Procter, who gives a sketch of the methods and some discussion of what is a very ancient industry, involving in its explanation some difficult branches of human knowledge.

OUR ASTRONOMICAL COLUMN.

COMET 1914*c* (NEUJMIN).—Prof. H. Kobold contributes to a supplement to *Astronomische Nachrichten* (No. 4748) the elements and ephemeris of the comet most recently discovered, namely, comet 1914*c* (Neujmin). The observations of July 1, 2, and 3 were utilised and a parabolic system of elements was computed. The elements are as follows: —